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DESCRIPTION OF THE STANDARD CENTIMETERS MANUFACTURED IN PURSUANCE OF THE RESOLUTION OF A. S. M. ADOPTED IN 1889.

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In the preparation of these five scales no attempt has been made to copy "Centimeter 'A.'" Even if the attempt had been made, it could not be known whether the scales so made were really copies without a careful comparison of them with the original, and, if their corrections are known, it matters not whether they are copies or not. They are, as will be seen, all ruled on plate-glass, three inches long by one wide. Considerable difficulty was experinced in getting suitable glass for this purpose, but the glass used will, it is believed, answer every requirement. The diamond used is one that has been in use for some time, and it is believed that the lines will prove durable, though time only will settle the question. The centimeters and their subdivisions ruled on these plates were all ruled with the same settings of the index of the screw and under as nearly the same conditions as to temperature, etc., as could be commanded. Their errors, therefore, should be very nearly the same. Each centimeter is subdivided into ten millimeters, the first millimeter into tenths, and the first tenth into hundredths. The defining lines are single, differing in this respect from "Centimeter 'A,'" in which they are triple. The last defining line of the last millimeter of each scale is the middle line of a triplet, three lines being ruled at the end of each scale to facilitate the identification of the separate millimeters. Two lines about 20 $\mu\mu$. apart are ruled at right angles to the defining lines. All measurements should be made between these lines. For purposes of identification they have been marked "1 cm., Ewell I, etc., to V." These scales were sent to Prof. W. A. Rogers on the 16th of July, 1890, for investigation and report to this Society.

The writer very much prefers a scale ruled on a metal surface, as giving a better and more durable line, and as in every other way more suitable for micrometric purposes. The fact that such a scale cannot be used with transmitted light is an objection of no weight, for by using a Smith's vertical illuminator it can be investigated with the highest powers. The writer has often used his Zeiss 1–18 on such a scale with great satisfaction.

Should the proposition meet with favor the writer will undertake to make for the Society, in ample time for thorough investigation before the next meeting, one or more standard centimeters on speculum metal surfaces by Brashear, or on silvered glass as may be preferred, which, when investigated, may serve as sub-standards, obviating the necessity of using the original "Centimeter 'A'" except on rare occasions. No charge will be made for this service beyond the expense of the surfaces, which for two such scales the writer will undertake shall not exceed $6.00. The expense would not be even so large as this, but for the fact that even with great care one is liable to spoil one or more surfaces before getting a satisfactory ruling. With these sub-standards and the glass scales herewith presented, which will serve for more common use, the micrometric standards of the Society would need no further addition to their number and would subserve all the purposes for which they are intended.